

# MACHINE SPECIFICATIONS (SELECTION SHEET)

**PUMA 4100A[LA]  
PUMA 4100B[LB]  
PUMA 4100C[LC]**

**HORIZONTAL TURNING CENTER**

Draft	Correction	Approval
진민식	조민희	조민희
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**Confirmed by Control Technology Team 1**  
**Issued by Product Development Team 1**

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DOOSAN INFRACORE CO., LTD.

HORIZONTAL TURNING CENTER

PUMA 4100 [L]

MACHINE SPEC. SELECTION SHEET



1. GENERAL SPECIFICATION

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
CAPACITY	SWING OVER BED		mm	790			DEFAULT	
	SWING OVER SADDLE		mm	590				
	MAX. TURNING DIAMETER		mm	550				
	RECOMMENDED TURNING DIAMETER		mm	315	380	380		
	MAX. TURNING LENGTH		mm	1,079 [2,129]	1,043 [2,093]	1,024 [2,074]		
	MAX. ALLOWABLE WORKPIECE WEIGHT (INCLUDING CHUCK)	CHUCK WORK	kg	400	700	900		
		SHAFT WORK	kg	1,100 [1,600 <sup>(3)</sup> ]	1,700 [2,000 <sup>(3)</sup> ]	2,200 [2,700 <sup>(3)</sup> ]		
	BAR WORKING DIAMETER		mm	102	116.5	165.5		
TRAVEL	X-AXIS		mm	352 (77+275)				
	Z-AXIS		mm	1,105 [2,155]				
ACCURACY	POSITIONING	X-AXIS	mm	0.01				
		Z-AXIS	mm	0.02				
	REPEATABILITY	X-AXIS	mm	+/-0.002				
		Z-AXIS	mm	+/-0.003				
MACHINE DIMENSION	LENGTH		mm	4654 [5774]				
	WIDTH		mm	2055 [2275]				
	HEIGHT		mm	2194 [2,222]				
MACHINE WEIGHT (NET) <sup>(1)</sup>			kg	9,450 [10,900]	9,950 [11,400]	10,450 [11,900]		
HEIGHT FROM FLOOR TO SPINDLE CENTER			mm	1,127				
BASE STRUCTURE	BED SLANT ANGLE		deg	45				
	GUIDEWAY TYPE		-	BOX GUIDE				
UTILITY	CONTROL POWER		-	3Ph-AC220V / 60Hz				
	REQUIRED POWER CAPACITY		kVA	38.40 [39.32]	42.25 [43.17]	51.05 [51.97]	STD.	SELECTIVE
			kVA	42.25 [43.17]	51.05 [51.97]	51.05 [51.97]	OPT.	
	COMPRESSED AIR SUPPLY	PRESSURE	Mpa	0.5			DEFAULT	
		CONSUMPTION <sup>(2)</sup>	NL/min	0				
MACHINE COLOR			-	DOOSAN 4-TONE COLOR MT DARK GRAY (5.3PB 3.0/0.4) MT MIDDLE GRAY (1.4RP 4.8/0.1) MT LIGHT GRAY (7.3B 7.8/0.4) MT BLUE (6.1PB 5.9/7.6)			STD.	SELECTIVE
				USER DEFINED			OPT.	
CNC CONTROL			-	FANUC 32i			STD.	SELECTIVE
				DOOSAN-FANUC i Series			OPT.	

(1) The machine weight is measured with standard accessories and features fitted.

(2) Compressed air consumption is measured in standard specification. The actual value may differ from the specified here, depending on the optional features and peripheral equipment.  
Please contact Doosan or your regional manager.

(3) This value is based on using steady rest.

2. MAIN SPINDLE

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
MAIN SPINDLE	DRIVE MECHANISM		-	BELT-DRIVE			DEFAULT	
	STANDARD CHUCK SIZE		mm	315(12")	380(15")	530(21")		
	SPINDLE NOSE		ASA	A2-11	A2-11	A1-15		
	SPINDLE BEARING DIAMETER (FRONT)		mm	160	180	240		
	SPINDLE THROUGH HOLE DIAMETER		mm	115	132	181		
	SPINDLE SPEED		r/min	3,000	2,000	1,500		
	BORE OF DRAW TUBE		mm	103	117.5	166.5		
SPINDLE MOTOR	STANDARD MOTOR (DOOSAN GEAR BOX)	MOTOR TYPE	-	18+DI GB	22+DI GB	30+DI GB	STD.	SELECTIVE
		MOTOR POWER (30min/CONT.)	kW	22 / 18.5	26 / 22	37 / 30		
		HIGH WINDING POWER RANGE	r/min	750 ~ 3,000	500 ~ 2,000	383.3 ~ 1,500		
		LOW WINDING POWER RANGE	r/min	211 ~ 843.9	140.4 ~ 561.8	107.7 ~ 561.8		
		HIGH GEAR RATIO	-	1:2	1:3	1:3		
		LOW GEAR RATIO	-	1:7.11	1:10.68	1:10.68		
		MAX. SPINDLE TORQUE FOR TURNING	Nm	995	1,767	3,280		
	OPTION MOTOR 1 (BARUFFALDI GEAR BOX)	MOTOR TYPE	-	22+BF GB	30+BF GB	30+BF GB	OPT.	
		MOTOR POWER (30min/CONT.)	kW	26 / 22	37 / 30	37 / 30		
		HIGH WINDING POWER RANGE	r/min	1000 ~ 3,000	580.8 ~ 2,000	580.8 ~ 1,500		
		LOW WINDING POWER RANGE	r/min	250.4 ~ 1001.7	145.2 ~ 757.6	145.2 ~ 757.6		
		HIGH GEAR RATIO	-	1:1.5	1:1.98	1:1.98		
		LOW GEAR RATIO	-	1:5.99	1:7.92	1:7.92		
		MAX. SPINDLE TORQUE FOR TURNING	Nm	991	2,432	2,432		
	OPTION MOTOR 2 (HIGH TORQUE)	MOTOR TYPE	-	N/A	N/A	N/A	OPT.	
		MOTOR POWER (30min/CONT.)	kW	N/A	N/A	N/A		
		HIGH WINDING POWER RANGE	r/min	N/A	N/A	N/A		
		LOW WINDING POWER RANGE	r/min	N/A	N/A	N/A		
		HIGH GEAR RATIO	-	N/A	N/A	N/A		
		LOW GEAR RATIO	-	N/A	N/A	N/A		
		MAX. SPINDLE TORQUE FOR TURNING	Nm	N/A	N/A	N/A		

3. TAIL STOCK

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
TAIL STOCK 1 (MANUAL)	DRIVING MECHANISM			MANUAL (DRIVE BAR + CARRIAGE)			STD.	SELECTIVE
	QUILL DIAMETER		mm	120				
	QUILL TRAVEL		mm	120				
	TAIL STOCK TRAVEL		mm	1,000 [2,050]				
	MAX. QUILL THRUST FORCE		kN	14.3				
	QUILL CYLINDER AREA		cm <sup>2</sup>	26.5				
TAIL STOCK 2 (PROGRAMMABLE)	DRIVING MECHANISM			PROGRAM (DRIVE BAR + CARRIAGE)			OPT.	SELECTIVE
	QUILL DIAMETER		mm	120				
	QUILL TRAVEL		mm	120				
	TAIL STOCK TRAVEL		mm	1,000 [2,050]				
	MAX. QUILL THRUST FORCE		kN	14.3				
	QUILL CYLINDER AREA		cm <sup>2</sup>	26.5				
TAIL STOCK CENT	TAIL STOCK CENTER	LIVE CENTER	MT	#6			STD.	SELECTIVE
		BUILT-IN TYPE DEAD CENTER	MT	#5			OPT.	

4. TURRET

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
TURRET 1	TOOL HOLDER MOUNT TYPE		-	DI Base Holder			STD.	SLECTIVE
	NUMBER OF TOOL STATIONS		EA	12	10	10		
	CURVIC COUPLING DIAMETER		mm	320				
	TURRET CLAMPING FORCE		kN	142				
	TURRET INDEX MOTOR		-	RG28TC (Servo)				
	TURRET INDEX MOTOR POWER		kW	2.8				
	TURRET INDEXING TIME	1-STATION SWIVEL	sec	0.25				
		1-STATION INDEX	sec	0.9				
		FULL STATION INDEX	sec	1.9				
	OD TOOL SIZE		mm	32 x 32				
BORING BAR DIAMETER		mm	Φ60					
TURRET 2	TOOL HOLDER MOUNT TYPE		-	DI Base Holder			OPT.	SLECTIVE
	NUMBER OF TOOL STATIONS		EA	10	12	12		
	CURVIC COUPLING DIAMETER		mm	320				
	TURRET CLAMPING FORCE		kN	142				
	TURRET INDEX MOTOR		-	RG28TC (Servo)				
	TURRET INDEX MOTOR POWER		kW	2.8				
	TURRET INDEXING TIME	1-STATION SWIVEL	sec	0.25				
		1-STATION INDEX	sec	0.9				
		FULL STATION INDEX	sec	1.9				
	OD TOOL SIZE		mm	32 x 32				
BORING BAR DIAMETER		mm	Φ60					

5. AXES SYSTEM

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
RAPID TRAVERSE RATE		X-AXIS	m/min	16			DEFAULT	
		Z-AXIS	m/min	20 [18]				
RAPID TRAVERSE RATE		X-AXIS	msec	120				
ACCELERATION/DECELERATION TIME		Z-AXIS	msec	160				
MAX. CUTTING FEEDRATE		X-AXIS	mm/rev	500				
		Z-AXIS	mm/rev	500				
CONTINUOUS THRUST FORCE		X-AXIS	N	15,551				
		Z-AXIS	N	16,965 [17,907]				
INTERMITTENT THRUST FORCE		X-AXIS	N	24,881				
		Z-AXIS	N	27,143 [28,651]				
BALLSCREW (DIAMETER X LEAD)		X-AXIS	mm	40 X 8				
		Z-AXIS	mm	50 X 10 [50 X12]				
SERVO MOTOR POWER(MODEL)		X-AXIS	kW	4				
		Z-AXIS	kW	7.0 [6.0]				
GEAR RATIO		X-AXIS	-	1 : 1				
		Z-AXIS	-	1 : 1				
FEEDBACK SYSTEM	ENCODER	ALL AXES	-	ABSOLUTE			DEFAULT	
	LINEAR SCALE	X-AXIS	-	(HEIDENHAIN)			OPT.	SELECTIVE
		Z-AXIS	-	(HEIDENHAIN)			OPT.	SELECTIVE
GUIDE WAY SPAN		BED(Z-AXIS)	mm	420			DEFAULT	
		SADDLE(X-AXIS)	mm	360				
		BED(TAIL STOCK)	mm	300				

6. OIL HYDRAULIC SYSTEM

ITEM		UNIT	SPECIFICATION			SELECTION
			PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]	
HYDRAULIC	TANK CAPACITY	L	14			DEFAULT
	PUMP TYPE	-	PISTON PUMP			
	MOTOR CAPACITY	kW	2.2			
	OPERATING PRESSURE	Mpa	4			
	COOLING SYSTEM	-	RADIATOR + FAN			
	FLOW RATE	L/min	25 / 23 (60 / 50Hz)			
	VISCOSITY GRADE OF OIL	-	ISO VG32			
LUBRICATION	TANK CAPACITY	L	4.3			DEFAULT
	PUMP TYPE	-	Gear Pump			
	PUMP MOTOR POWER	W	120			
	DISCHARGE PRESSURE	Mpa	1.6±0.1			
	DISCHARGE VOLUME	L/min	0.1 (60 / 50Hz)			
	VISCOSITY GRADE OF OIL	-	ISO VG68			
	DISTRIBUTOR TYPE	-	METERING			

7. COOLANT SYSTEM

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
COOLANT TANK	RIGHT DISPOSAL	TANK CAPACITY	L	280 [370]			DEFAULT	
		COOLANT OIL	TYPE	WELL-CUT B 30				
COOLANT PUMP FOR MAIN TURRET	PUMP1 (1.5 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	0.4			STD.	SELECTIVE
		FILTRATION	Mesh	20 (TANK SCREEN FILTER)				
		MAX. PRESSURE	Mpa	0.15 / 0.1 (60 / 50 Hz)				
		MAX. FLOW RATE	L/min	40				
	PUMP 2 (4.5 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	0.9			OPT.	
		FILTRATION	Mesh	20 (TANK SCREEN FILTER)				
		MAX. PRESSURE	Mpa	0.45 / 0.3 (60 / 50 Hz)				
		MAX. FLOW RATE	L/min	30				
	PUMP 3 (7 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	1.5			OPT.	
		FILTRATION	Mesh	20 (TANK SCREEN FILTER)				
		MAX. PRESSURE	Mpa	0.7 / 0.5 (60 / 50 Hz)				
		MAX. FLOW RATE	L/min	30				
	PUMP 4 (10 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	2.2			OPT.	
		FILTRATION	Mesh	20 (TANK SCREEN FILTER)				
		MAX. PRESSURE	Mpa	1.0 / 0.7 (60 / 50 Hz)				
		MAX. FLOW RATE	L/min	30				
	PUMP 5 (14.5 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	3.7			OPT.	
		FILTRATION	Mesh	20 (TANK SCREEN FILTER)				
		MAX. PRESSURE	Mpa	1.45 / 1.0 (60 / 50 Hz)				
		MAX. FLOW RATE	L/min	30				
PUMP 6 (28 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	4			OPT.		
	FILTRATION	µm	20(TANK SCREEN FILTER)					
	MAX. PRESSURE	Mpa	2.8 / 1.95 (60 / 50 HZ)					
	MAX. FLOW RATE	L/min	20					
PUMP 7 (70 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	5.5			OPT.		
	FILTRATION	µm	25 (DUAL BAG FILTER) WITH CLOGGING ALARM					
	MAX. PRESSURE	Mpa	7					
	MAX. FLOW RATE	L/min	30					
PUMP 8 (70 BAR) <sup>(1)</sup>	PUMP MOTOR POWER	kW	7.5			OPT.		
	FILTRATION	µm	10 (PAPER FILTER)					
	MAX. PRESSURE	MPa	7.0					
	MAX. FLOW RATE	L/min	20					
COOLANT OPTION	COOLANT CHILLER*		SET	1			OPT.	SELECTIVE
	OIL SKIMMER		SET	1			OPT.	SELECTIVE
	COOLANT PRESSURE SWITCH		SET	1			OPT.	SELECTIVE
	COOLANT LEVEL SWITCH		SET	1			OPT.	SELECTIVE

(1) MEASURED AT PUMP OUTLET WITH 60Hz POWER.

8. WORK HOLDING DEVICE

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
HYDRAULIC CHUCK FOR MAIN SPINDLE	STANDARD CHUCKING WITH SEOAM	CHUCK SPEC. ( STROKE)	- (mm)	CGH-12 (24)	CAH-15 (23)	CGH-21 (23)	STD.	SELECTIVE
		CYLINDER SPEC. (STROKE)	- (mm)	YSGH-12 (35)	YSHL-15 (50)	YSHL-21 (51)		
	OPTION CHUCKING WITH SAMCHULLY	CHUCK SPEC. ( STROKE)	- (mm)	MH-212 (23)	HCH-15 (23)	MH-221 (23)	OPT.	
		CYLINDER SPEC. (STROKE)	- (mm)	SH21010 (35)	SHL-25011 (50)	SYHL-2816 (51)		
	OPTION CHUCKING WITH SEOAM BIGGER CHUCK	CHUCK SPEC.(STROKE)	- (mm)	N/A	CAHA-18 (23)	N/A	OPT.	
		CYLINDER SPEC.(STROKE)	- (mm)	N/A	YSHL-15 (50)	N/A		
	OPTION CHUCKING WITH SAMCHULLY BIGGER CHUCK	CHUCK SPEC.(STROKE)	- (mm)	N/A	HCH-18 (23)	N/A	OPT.	
		CYLINDER SPEC.(STROKE)	- (mm)	N/A	SHL-25011 (50)	N/A		
	OPTION CHUCKING WITHOUT CHUCK	CHUCK SPEC.(STROKE)	- (mm)	-	-	-	OPT.	
		CYLINDER SPEC.(STROKE)	- (mm)	SH21010 (35)	SHL-25011 (50)	SYHL-2816 (51)		
	TWIN CHUCKING*		-	ORDER MADE			OPT.	
	SPECIAL CHUCKING*		-	PLEASE CONTACT DOOSAN			OPT.	
	DUAL PRESSURE CHUCKING		-	●			OPT.	SELECTIVE
	CHUCK CLAMP CONFIRMATION		-	●			OPT.	SELECTIVE
	HARDENED & GROUND HARD JAWS		SET	1			OPT.	SELECTIVE
	SOFT JAW <sup>(1)</sup>		SET	1			STD.	DEFAULT
STEADY REST	MANUAL STEADY REST	TYPE 1 (Ø25 ~ Ø200)	SET	●			OPT.	SELECTIVE
		TYPE 2 (Ø50 ~ Ø260)	SET	●			OPT.	
	HYDRAULIC STEADY REST	SLU-3 (Ø16 ~ Ø152)	SET	●			OPT.	
		SLU-3.1 (Ø20 ~ Ø165)	SET	●			OPT.	
		SLU-4 (Ø35 ~ Ø245)	SET	●			OPT.	
	PROGRAMMABLE STEADY REST (FOLLOW TYPE)	SLU-3 (Ø16 ~ Ø152)	SET	●			OPT.	
		SLU-3.1 (Ø20 ~ Ø165)	SET	●			OPT.	
		SLU-4 (Ø35 ~ Ø245)	SET	●			OPT.	

(1) EACH CHUCK COMES WITH 1SET OF SOFT JAWS AS STANDARD. DEPENDS ON SELECTED CHUCK TYPE, ITS SUPPLYING CAN BE DIFFERENT.

9. CHIP DISPOSAL

ITEM			UNIT	SPECIFICATION			SELECTION	
				PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
CHIP CONVEYOR	RIGHT DISPOSAL	HINGED BELT TYPE FOR STEEL	SET	1			OPT.	SELECTIVE
		MAGNETIC SCRAPER TYPE FOR CAST IRON	SET	1			OPT.	
		SPECIAL CHIP CONVEYOR*	SET	ORDER MADE			OPT.	
CHIP BUCKET	CAPACITY	FORKLIFT	L	220			OPT.	SELECTIVE
			L	300			OPT.	
			L	380			OPT.	
		ROTATION	L	220			OPT.	
			L	300			OPT.	
			L	380			OPT.	
AIR BLOWER	MAIN SPINDLE CHUCK JAW CLEANING		SET	1			OPT.	SELECTIVE
CHUCK COOLANT	MAIN SPINDLE CHUCK JAW CLEANING		SET	1			OPT.	SELECTIVE
COOLANT GUN			SET	1			OPT.	SELECTIVE
MIST COLLECTOR	INTERFACE (DUCT ONLY)		SET	1 (Φ150mm)			OPT.	SELECTIVE
	INTEGRATED MIST COLLECTOR		SET	1 (Φ150mm)			OPT.	SELECTIVE

10. OPTIONAL EQUIPMENTS

ITEM		UNIT	SPECIFICATION			SELECTION	
			PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]		
MEASUREMENT	MANUAL TOOL SETTER (MAIN,REMOVABLE)	SET	1		N/A	OPT.	SELECTIVE
	AUTO TOOL SETTER (MAIN, HYDRAULIC)	SET	1			OPT.	SELECTIVE
	IN-MACHINE WORKPIECE MEASURING SYSTEM*	SET	1 (OLP40)			OPT.	SELECTIVE
OTHERS	AIR GUN	SET	1			OPT.	SELECTIVE
	AIR LIMIT	SET	1			OPT.	SELECTIVE
	AUTOMATIC FRONT DOOR WITH SAFETY DEVICE	SET	1			OPT.	SELECTIVE
	AUTOMATIC POWER OFF	SET	1			OPT.	SELECTIVE
	PRESSURE SWITCH FOR CHUCKING PRESSURE CHECK	SET	1			OPT.	SELECTIVE
	ROTARY TYPE WINDOW WIPER	SET	1			OPT.	SELECTIVE
	SIGN/AL TOWER (YELLOW, RED, GREEN)	SET	1			OPT.	SELECTIVE
	TOOL MONITORING SYSTEM	SET	1			OPT.	SELECTIVE

11. STANDARD ACCESSORIES

ITEM	UNIT	SPECIFICATION			SELECTION
		PUMA 4100A [LA]	PUMA 4100B [LB]	PUMA 4100C [LC]	
FOOT SWITCH	SET	Single			DEAFULT
FRONT GUARD DOOR INTER LOCK	SET	1			
FULL ENCLOSURE CHIP AND COOLANT SHIELD	SET	1			
HAND TOOL KIT(INCLUDING SMALL TOOL FOR OPERATIONS)	SET	1			
LEVELING JACK SCREW & PLATES	SET	1			
MANUALS	SET	1			
SAFETY PRECAUTION NAME PLATES	SET	1			
WORK LIGHT	SET	2			

< NOTE >

1. DESIGNS AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
2. ALL VALUES SPECIFIED IN THE DOCUMENT ARE VALID FOR STANDARD ELECTRIC POWER CONDITIONS.(60Hz, 220V)
3. IF YOU HAVE ANY QUESTION REGARDING CONTENTS OR SELECT \* MARKED CONTENT, PLEASE CONTACT DOOSAN.MACHINE TOOLS
4. MACHINE LAY-OUT AND WEIGHT CAN BE CHANGED DEPENDING ON OPTIONS AND PERIPHERAL EQUIPMENT.
5. PLEASE REFER TO LAY-OUT AND FOUNDATION DRAWING REGARDING INSTALLATION/ELECTRIC DEVICE.
6. PRESSURE AND FLOW RATE VALUES OF COOLANT AND HYDRAULIC PUMP ARE GIVEN AT PUMP OUTLET.
7. THE FLOW RATE AND THE PRESSURE OF COOLANT SPECIFIED IN THE DOCUMENT ARE VALID FOR WATER SOLUBLE COOLANT.
8. REFER TO THE SEPARATED SPEC. SHEETS TO REVIEW SPECIFICATION, FUNCTION AND OPTION OF CNC CONTROLLER.